TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: sid@timcoengr.com

Test Report

Product Name: AUDITORY ASSISTANCE TRANSMITTER

FCC ID: B5DM522

Applicant:

TELEX COMMUNICATION INC.
8601 E. CORNHUSKER HIGHWAY
PO BOX 5579
LINCOLN, NEBRASKA 68505-5579

Date Receipt: JUNE 21, 2004

Date Tested: JUNE 30, 2004

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APPLICANT: TELEX COMMUNICATIONS INC.

FCC ID: B5DM522

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EMC Equipment List

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/04	3/26/07
3-Meter OATS	TEI	N/A	N/A	Listed 1/13/03	1/12/06
Biconnical Antenna	Eaton	94455-1	1057	CAL 3/18/03	3/18/05
Biconnical Antenna	Eaton	94455-1	1096	CAL 10/1/01	10/1/03
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/26/01	4/26/03
Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/15/03	4/15/05
Blue Tower RF Preselector	HP	85685A	2620A00294	CAL 4/27/04	4/27/06
Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/15/03	4/15/05
LISN	Electro-Metrics	ANS-25/2	2604	CAL 10/9/01	10/9/03
LISN	Electro-Metrics	EM-7820	2682	CAL 3/12/03	3/12/05
Log-Periodic Antenna	Eaton	96005	1243	CAL 5/8/03	5/8/05

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TEST PROCEDURES

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a pre-selector. In the frequency range 10 kHz to 30 MHz the RBW was 10 kHz and from 30-1000 MHz the RBW of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz. The ambient temperature of the UUT was &tempr& with a humidity of &humr&.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz)	METER READING + ACF = FS
33	20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI C63.4-1992 Section 8.2.1 MEASUREMENT PROCEDURES: The EUT was placed on a non-conducting table 80 cm above the ground plane with the EUT located in the center of the table. With the antenna vertical a preliminary scan was done at 1 meters distance, the EUT was moved to a 3.0-meter distance and the antenna height varied and also placed in a horizontal position. The frequency was scanned from 9.0 kHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The EUT was measured in three (3) orthogonal planes. The unit was measured at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45 Newberry, Florida 32669.

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APPLICANT: TELEX COMMUNICATIONS INC.

FCC ID: B5DM522

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NO. 15.237

REQUIREMENTS: CARRIER FREQUENCY WILL NOT EXCEEDS 98.0 dBuV/m AT 3M. OUT-OF-BAND EMISSIONS, OTHER THAN EMISSIONS IN THE RESTRICTED BAND SHALL NOT EXCEED 63.5 dBuV/m AT 3M.

TEST DATA:

Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
72.50	39.3	H	0.80	6.35	46.45	51.55
72.50	48.9	V	0.80	5.95	55.65	42.35
580.00	10.4	H	3.74	19.50	33.64	29.86
580.00	12.5	V	3.74	19.20	35.44	28.06
74.70	35.8	H	0.80	6.92	43.52	54.48
74.70	46.7	V	0.80	6.61	54.11	43.89
448.20	7.3	H	3.34	18.86	29.50	64.00
448.20	6.1	V	3.30	18.16	27.55	35.95
522.90	10.2	H	3.57	18.87	32.64	30.86
522.90	11.1	V	3.57	18.34	33.01	30.49
597.60	9.7	H	3.79	19.70	33.19	30.31
597.60	10.8	V	3.79	19.00	33.59	29.41
75.50	35.1	H	0.80	7.16	43.06	54.94
75.50	46.6	V	0.80	6.84	54.24	43.76
453.00	11.2	V	3.37	18.05	32.62	30.88
453.00	16.6	H	3.37	18.63	38.60	24.90
528.00	10.0	H	3.58	18.82	32.40	31.10
528.00	10.7	V	3.58	18.24	32.52	30.98

SAMPLE CALCULATION: FSdBuV/m = MR(dBuV) + ACFdB.

TEST PROCEDURE: The procedure used was ANSI C63.4-1992 Section 8.2. The frequency was scanned from 9.0 kHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The EUT was measured in three(3) orthogonal planes. The unit was measured at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45 Newberry, Florida 32669.

TEST RESULTS: THE UNIT DOES MEET THE FCC REQUIREMENTS.

PERFORMED BY: NAM NGUYEN **DATE: JUNE 30, 2004**

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APPLICANT: TELEX COMMUNICATIONS INC.

FCC ID: B5DM522

NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE

RULES PART NO.: 15.207(a)

REQUIREMENTS:

	QUASI-PEAK	**AVERAGE**
.15 – 0.5 MHz	66-56 dBuV	56-46 dBuV
0.5 – 5.0	56	46
5.0 – 30.	60	50

TEST PROCEDURE: ANSI STANDARD C63.4-2001. The spectrum was scanned from .15 to 30 MHz.

TEST DATA:

THE GRAPHS ON THE FOLLOWING PAGES REPRESENT THE EMISSIONS TAKEN POWER LINE CONDUCTED FOR THIS DEVICE.

TEST RESULTS: Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

PERFORMED BY: **NAM NGUYEN** **DATE:** **JUNE 30, 2004**

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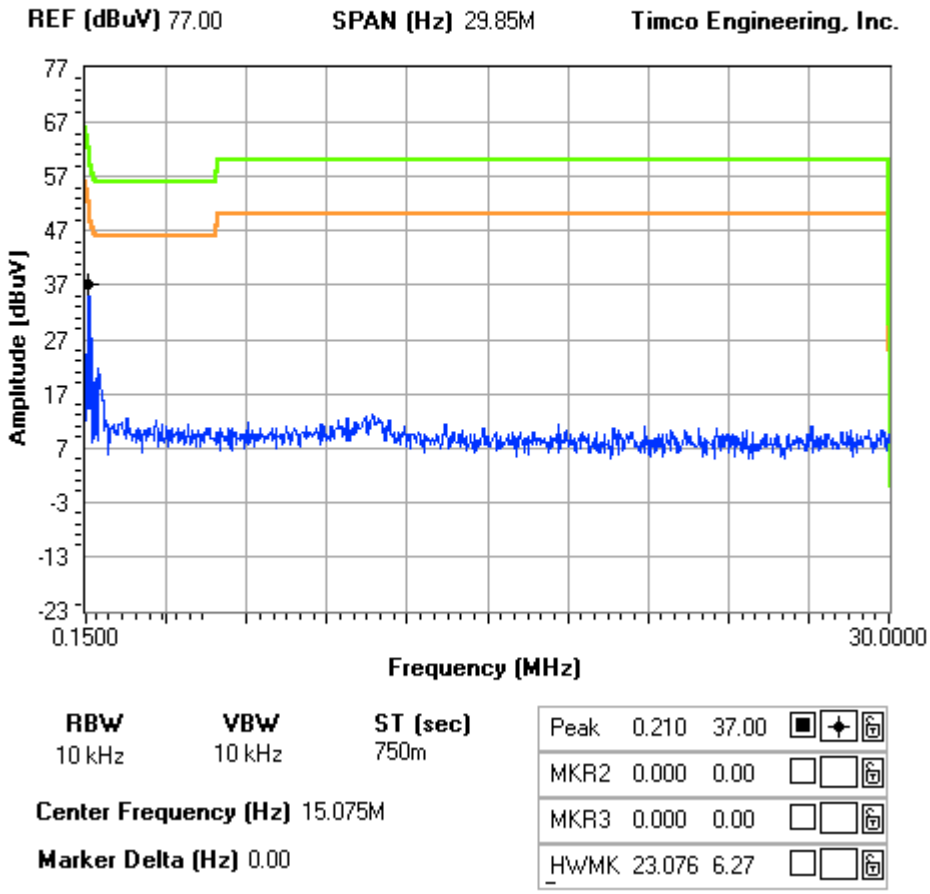
POWER LINE CONDUCTED
LINE 1

NOTES:
TELEX COMMUNICATIONS INC. - FCC ID: B5DM522
POWER LINE CONDUCTED PLOT. - LINE 1



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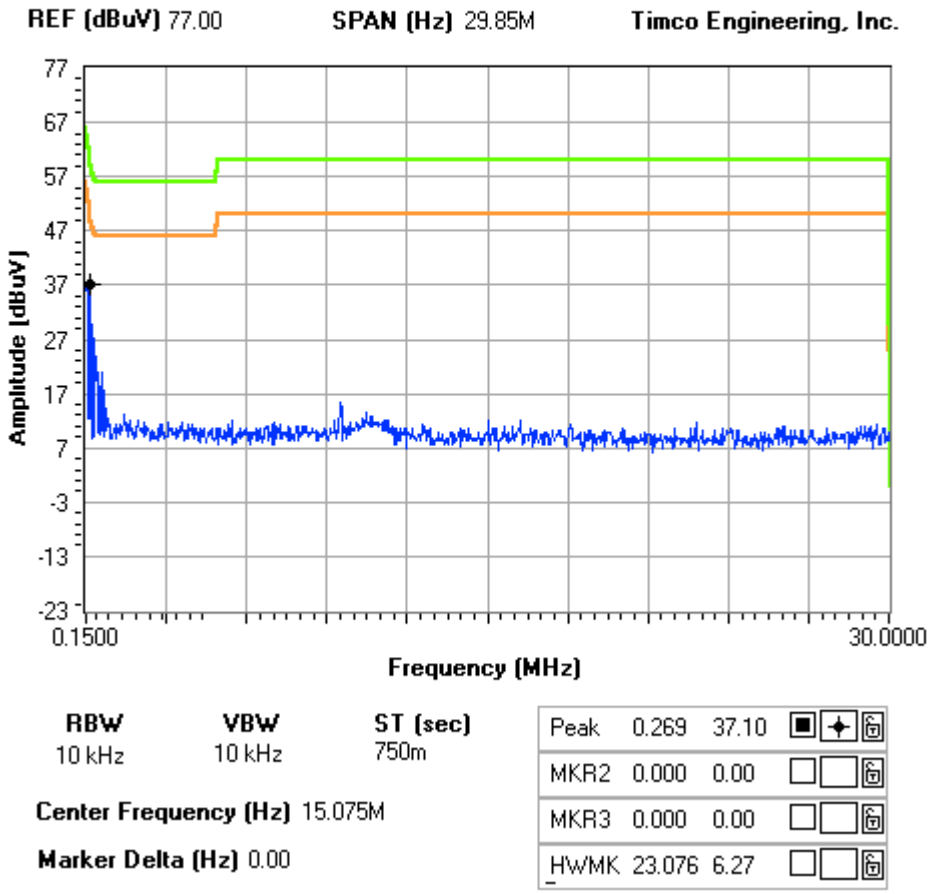
POWER LINE CONDUCTED
LINE 2

NOTES:
TELEX COMMUNICATIONS INC. - FCC ID: B5DM522
POWER LINE CONDUCTED PLOT. - LINE 2



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APPLICANT: TELEX COMMUNICATIONS INC.

FCC ID: B5DM522

NAME OF TEST: Occupied Bandwidth

RULES PART NO.: 15.237

REQUIREMENTS: Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the specified frequency ranges – 72.0-73.0 MHz, 74.6-74.8 MHz, and 75.2-76.0 MHz.

TEST DATA:

THE GRAPH ON THE FOLLOWING PAGE REPRESENTS THE EMISSIONS TAKEN OCCUPIED BANDWIDTH FOR THIS DEVICE.

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the above photo was taken. The vertical scale is set to -10 dBm per division.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: NAM NGUYEN **DATE: JUNE 30, 2004**

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OCCUPIED BANDWIDTH

NOTES:
TELEX COMMUNICATIONS INC. - FCC ID: B5DM522
OCCUPIED BANDWIDTH PLOT